**Webquest**

Your job in this WebQuest is to discover what alternative fuels are, and find out how the use of such fuels can reduce overall air pollution from vehicles. You will explore the different types of alternative fuels, and identify those that appear to be most cost-effective. You will also learn about other energy sources that could be used to power vehicles. Finally, you will answer a set of questions about alternative fuels to demonstrate what you have learned.

**Resources**

Look at the web sites given here to find the information that will enable you to answer questions about alternative fuels.

* [**Alternative Fuels and Advanced Vehicles Data Center.**](http://www.glencoe.com/sec/science/cgi-bin/splitwindow.cgi?top=http://www.glencoe.com/sec/science/top2.html&link=http://www.afdc.energy.gov/afdc/fuels/index.html)Visit this U.S. Department of Energy site to learn all about alternative fuels, alternative fuel vehicles, and refueling sites. Scroll down and click on frequently asked questions to find out the definition of alternative fuels. Explore the site for information on biodiesel fuel, electric fuel, ethanol, methanol, hydrogen, natural gas, propane, and more.
* [**Alternative Fuels.**](http://www.glencoe.com/sec/science/cgi-bin/splitwindow.cgi?top=http://www.glencoe.com/sec/science/top2.html&link=http://www.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm)Go to this Environmental Protection Agency (EPA) site to learn more about alternative fuels. Scroll down and click on clean fuels: an overview to find out what clean fuels are and how they can reduce overall vehicular air pollution.
* [**Bio Energy.**](http://www.glencoe.com/sec/science/cgi-bin/splitwindow.cgi?top=http://www.glencoe.com/sec/science/top2.html&link=http://www.fsa.usda.gov/Internet/FSA_File/bioenergy05.pdf)Visit this site by the Farm Service Agency of the U.S. Department of Agriculture to learn how this agency seeks to expand the industrial consumption of agricultural products by promoting their use in the production of bioenergy, primarily ethanol and biodiesel fuel.
* [**Biofuels Program Research.**](http://www.glencoe.com/sec/science/cgi-bin/splitwindow.cgi?top=http://www.glencoe.com/sec/science/top2.html&link=http://www1.eere.energy.gov/biomass/)At this site by the National Biofuels Program of the U.S. Department of Energy you can learn more about biofuels. Biofuels can supply the U.S. with alternatives to imported oil. Scroll down and click on bioethanol to learn how biomass is converted to bioethanol fuel.
* [**National Renewable Energy Laboratory.**](http://www.glencoe.com/sec/science/cgi-bin/splitwindow.cgi?top=http://www.glencoe.com/sec/science/top2.html&link=http://www.nrel.gov/)Go to this U.S. Department of Energy site to read about this laboratory where scientists evaluate biomass fuels such as ethanol and methanol, as well as other renewable energy resources such as hydropower and wind energy.
* [**Ethanol Information Centre.**](http://www.glencoe.com/sec/science/cgi-bin/splitwindow.cgi?top=http://www.glencoe.com/sec/science/top2.html&link=http://www.greenfuels.org/ethanol.php)Visit this Canadian site to learn more about ethanol as a fuel. Click on fuel ethanol and food supply to see how growing crops to produce ethanol might affect food production in Canada.

Process

Read through the following set of questions before you begin your Internet research. As you explore each site, look for answers to the questions.

***Questions about Alternative Fuels***

* 1. What is an alternative fuel?
  2. Give three examples of alternative fuels.
  3. What is biomass?

* 1. Give three examples of biomass fuels.

* 1. What are the four types of biomass that can be converted into alternative fuels?

* 1. What is bioenergy?

* 1. What is biodiesel fuel? What is it made from?

* 1. What is ethanol? What is it made from?

* 1. What is methanol? What is it made from?

* 1. How is biomass converted to ethanol?